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(54) FLOW METER STRIP

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(34)	FLUW METER STRUT			
(75)	Inventors:	Byron G. Sjoblom, Middletown, RI (US); Gary R. Berlam, Cambridge, MA (US)		
	Assignee:	The United States of America as represented by the Secretary of the Navy, Washington, DC (US)		
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		248/161

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#### References Cited

## U.S. PATENT DOCUMENTS

2,322,753 A	• 6/1943	Thomas
3,770,031 A	* 11/1973	Olson 144/136
4,061,298 A	* 12/1977	Kober 278/677
4,154,100 A	* 5/1979	Harbaugh et al 73/861.66
4,237,739 A	* 12/1980	Owen et al 73/861.63
D278,316 S	* 4/1985	Bengtson D10/96
4,552,270 A	* 11/1985	Lentz et al 211/17
4,637,175 A	* 1/1987	Froening et al 52/27
4,696,194 A	• 9/1987	Taylor 73/861.66

4.723.747	•		2/1988	Karp 248/298
.,		_		
4,813,550	Α	-	3/1989	Saeks 211/17
4,972,339	Α	٠	11/1990	Gabrius 362/366
4,995,288	Α	*	2/1991	DellaPolla 83/574
5,086,930	Α	*	2/1992	Sacks 211/17
5,337,615	Α	*	8/1994	Goss 73/861.33
5,386,959	Α	*	2/1995	Laughlin 248/205.1
5,394,781	Α	*	3/1995	Tsubai 83/449
D358,952	S	*	6/1995	Stein D6/466
5,996,945	A	*	12/1999	Coles et al 248/68.1
6,012,340	Α	*	1/2000	Pounder 73/861.77
6,033,098	A	*	3/2000	Hentz 362/430
6,206,613	Bl	*	3/2001	Elkins 405/157
6,389,909	Bl	•	5/2002	Johnson et al 73/861.78
6,401,555	Вl	*	6/2002	Bowers 73/866.5
6,422,092	Bl	*	7/2002	Morrison et al 73/861.04
D464,582	S	*	10/2002	Pepperling et al D10/96

#### OTHER PUBLICATIONS

U.S. Ser. No. 2002/0144557 to Drahm Electromechanical Transducer, Oct. 2002.\*

### \* cited by examiner

Primary Examiner—Korie Chan
Assistant Examiner—Amy J. Sterling
(74) Attorney, Agent, or Firm—James M. Kasischke;
Michael F. Oglo; Jean-Paul A. Nasser

## (57) ABSTRACT

A flow meter strut assembly includes a strut portion having a first end plate, a second end plate, a longitudinally adjustable flow meter support structure between the first and second end plates, and curved mounting surfaces formed on outer surfaces of each of the first and second end plates of the strut portion. At least one flow meter is adjustably mounted on the flow meter support structure. The flow meter support structure is adjustable longitudinally by a turnbuckle assembly connected between the flow meter support structure and the second end plate.

## 6 Claims, 1 Drawing Sheet

